Sandia's student intern program helps Tsali Cross earn his PhD in engineering

By Iris Aboytes

In mid March, Virginia Stroud gave her son Tsali Cross a beautiful first-edition Pendleton blanket that she designed for him. In many American Indian tribes a blanket is presented to honor people. It is reserved for recognition of a special event or significant accomplishments. Tsali received his blanket in honor of his newly granted PhD in engineering.

PROUD MOM — Virginia Stroud presents her son Tsali Cross a Pendleton blanket she designed for him in recognition of his newly granted PhD in engineering.

In 2003 Tsali's advisor from the University of Colorado at Boulder, Professor Rishi Raj, an internationally known ceramist, visited the Materials Science and Engineering Center (1800) at Sandia. He discussed the feasibility of his graduate student Tsali Cross pursuing graduate research in Sandia's Microsystems Materials Dept. 1824.

A project on the friction and wear properties of polymer-derived ceramics would be mutually beneficial to Sandia and CU-Boulder. Since the proposed research also had direct applications to MESA projects, MESA Institute Manager Regan Stinnett (6439) provided partial support to Tsali's research by awarding him a MESA Institute fellowship.

The MESA Institute is a university partnership program for microsystems. One of MESA's missions is to foster relationships with leading universities and professors that will leverage Sandia work, provide new opportunities to the students and professors while also introducing new ideas to Sandia, and create a pipeline of highly trained, potential new hires for Sandia. The MESA Institute sponsors about 50 university students from throughout the US each year.

Tsali was mentored at Sandia by Somuri Prasad (1824), who is now also an adjunct professor at CU-Boulder. Somuri supported him through his thesis defense in March 2006. "Tsali came to our group with a mechanical engineering background, and at Sandia he quickly developed interdisciplinary skills that transformed him into a materials engineer and a tribologist," says Prasad. "He enjoyed being challenged and applied himself to any given task very effectively."

While at Sandia Tsali was an active participant in the American Indian Outreach Committee, participating in the Dream Catcher Science Program. There he led a class called the "Hole-in-One Competition." The objective was for the students to make competing designs of a golf course out of common, everyday materials, and each design competed against each other. "He was a hit with the students and left a lasting impression on the students' parents," says American Indian Outreach Committee Chairwoman Marie Brown (3553).

Tsali was born in Oklahoma and grew up in Durango, Colo., with his sister and mother, a professional American Indian artist. A large collection of his mother's artwork was recently included in the Smithsonian's archives of living artists. "As an artist I touch the human chord that erases the multicultural boundaries and ask the viewer to look for the familiar and not the differences of humanity," says Virginia.

Tsali recently began working for Intel in Santa Clara, Calif. "It was wonderful working at Sandia," says Tsali. "Sandia has so many experts in addition to its world-class facilities. At Sandia I worked on the study of friction, wear, and lubrication of materials. I got to develop new materials for microsystem technologies. I also designed, analyzed, and tested critical/complex materials."

"Tsali serves as a great example of how Sandia can work with universities and their students to the benefit of all," says Jonathan Custer, manager of the Microsystems Materials Department. "Tsali earned a PhD and simultaneously experienced firsthand how professional technical organizations work. Sandia got a hands-on evaluation of a new technology, and CU-Boulder got stronger ties to Sandia, including the services of Prasad as an adjunct professor."

VP Frank Figueroa (10000), Sandia campus executive for CU-Boulder, supported Sandia's actions and provided encouragement to Tsali. "Tsali is a bright and caring young man," says Figueroa. "It was a privilege to have him with us even for a little while, and I hope someday we might convince him to come back on a permanent basis. He gives me great hope for the future of our country."

STAR program participant Bennett Grill nets all-expenses-paid trip to Indianapolis

By Iris Aboytes

Bennett Grill, a participant in Sandia's STAR program, won an all-expenses-paid trip to Indianapolis May 7-14 for competition against 1,400 students from around the world. He took the top prize in the regional science fair competition. Bennett is a senior at Rio Rancho High School.

The STAR program is a research-based, non-residential mentorship program funded by Lockheed Martin Corporation and administered and designed by Sandia. Its goal is to provide highly motivated, high-performing high school students an opportunity to work closely with world-class engineers and scientists in a research-based summer program. The program enables students to gain real-world work experience in a technical field.

After his participation in the STAR program, Bennett spent another semester participating in Sandia's internship program, where he studied fundamental principles of electrochemistry using electrochemical and statistical analysis.

While at Sandia he worked with William Yelton of Photonic Microsystems Technology Dept. 1713. "He focused on understanding fundamental concepts.

At lunch, instead of spending time with students his age, he would open discussion on physics, chemistry, and engineering projects with many staff members in the area."

The title of the research paper Bennett wrote at Sandia is "Limitation of Cottrell's equation: Plotting electromechanical diffusion coefficients of potassium ferricyanide and potassium ferrocyanide as functions of temperature and concentration."

"His experience here exposed him to areas most students would not get until grad school," says William. "The program works."

Feedback

Q: This morning (4/5/06) in the parking lot of Building 701 I found myself in a very strange situation. I saw a white truck with government plates sitting in the lane between parked vehicles, and ahead of me (and it) a personal vehicle was pulling out of a parking space. I took that space, and the driver got out of his car and told me that I had to move my car, because he had been planning to park the government vehicle in the space. He said that he was a Sandian, would not give me his name, and threatened to call Security if I did not move my car. I told him that I thought the rule was that these spaces were for private vehicles, and after some discussion (very loud on his part) he said he would put his private vehicle back in the space, but he still demanded that I move my car. I did so, but I think the practice of swapping government and private vehicles back and forth to save parking spaces is inappropriate (and I had no reason to think that was what he was doing when I pulled into the space). Was he correct in demanding that I move my car? (And "demand" is not too strong a word.)

A: It is very unfortunate that this incident was addressed in what appears to be a very aggressive and confrontational manner. Aggressive behavior is unacceptable and if you felt threatened, please report the incident to your manager right away. You and your manager should talk over the situation and report it to the Workplace Violence Team Leader. Sandia has a strict policy on workplace violence: CPR300.5.4 —Workplace Violence Prevention Program.

As far as moving your vehicle is concerned, no, you didn't have to move it. However, you did the right thing by moving it to avoid an escalation of the situation. This type of practice is inappropriate. The Sandia Traffic Safety Committee will send out a communication to all members of the workforce, via SDN, that this type of practice is unacceptable and inappropriate. We are still working on the citation program and expect to have it completed in the near future.

— Darrell Fong, Chairman
Traffic Safety Committee